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Indian Standard

DIMENSIONS FOR
MOULDS FOR CAST RESIN BASED STRAIGHT
THROUGH JOINTS FOR CABLES FOR WORKING
VOLTAGES FROM 3.3 kV UP TO AND
INCLUDING 11 kV

(First Reprint APRIL 1998)

UDC 621.744.3 : 006.78 : 621.315.687.22

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NEW DELHI 110002

Indian Standard

DIMENSIONS FOR MOULDS FOR CAST RESIN BASED STRAIGHT THROUGH JOINTS FOR CABLES FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 11 kV

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Indian Standard

DIMENSIONS FOR MOULDS FOR CAST RESIN BASED STRAIGHT THROUGH JOINTS FOR CABLES FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 11 kV

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 February 1987, after the draft finalized by the Power Cables Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 Development of cast resin based straight through joints has been undertaken by several manufacturers in the country. A large variety of systems exist utilizing different methods for jointing and using different types of resins, fillers and hardeners. This standard has been prepared to rationalize the types and sizes of such joints suitable for thermoplastic and paper insulated cables.

0.3 The object of this standard is to specify envelope dimensions of straight through joint casting moulds. Only vital minimum dimensions are shown in the drawing. These dimensions have been worked out to give adequate clearances between phase-to-phase and phase-to-earth at the time of making joints. The manufacturer is free to adopt the other dimensions as also the general shape of the mould.

0.4 This standard does not cover the actual jointing methods of the specifications of materials and components; such as plastic moulds and casting resin system which are used in jointing.

0.5 As far as possible, various sizes of cables are covered under single type of mould. Selection of moulds, given in Table 2, is only for the guidance of users.

0.6 The minimum thickness of mould has not been specified since it is possible to adopt ribbed construction to get more strength of the mould. Also the strength to the joint is given by the cast resin rather than the mould.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies dimensions for moulds for cast resin based straight through joints for following types of cables:

- a) PVC insulated, unscreened, voltage grade from 3.3 kV up to and including 6.6 kV [see IS : 1554 (Part 2)-1981†]; and
- b) Paper insulated (PILC), belted type, voltage grade from 3.3 kV up to and including 11 kV [see IS : 692-1973‡].

1.2 This standard also covers the markings to be given and makes reference to the materials for such moulds.

2. MATERIAL

2.1 Plastic Mould — Plastic mould shall comprise two halves formed from plastic sheet, such as polystyrene, polyethylene or any other suitable plastic material. The two halves shall match each other so as to make a complete round mould at centre.

2.1.1 The mould shall have a smooth profile and shall be capable of sustaining the weight of the cast resin compound without deformation up to the maximum temperature developed during exothermic reaction.

3. DIMENSIONS

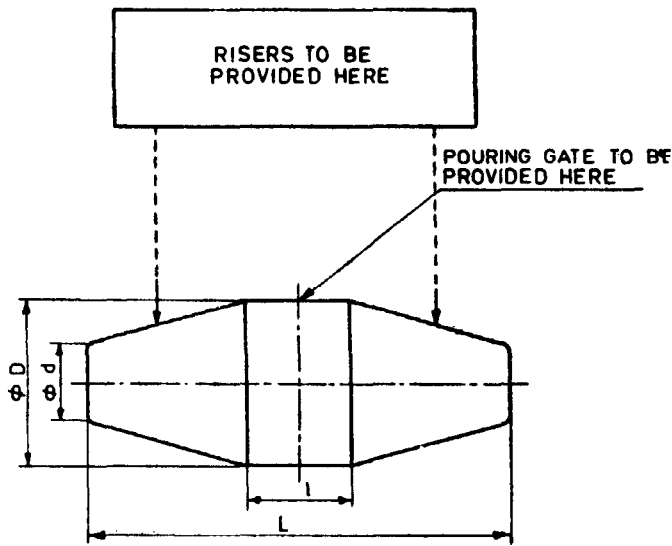
3.1 The dimensions of the mould (see Fig. 1) shall be as given in Table 1.

3.2 The mould shall be provided with suitable filling holes or pouring gates and risers generally as shown in Fig. 1.

*Rules for rounding off numerical values (revised).

†Specification for PVC insulated (heavy duty) electric cables: Part 2 For working voltages from 3.3 kV up to and including 11 kV (first revision).

‡Specification for paper insulated lead-sheathed cables for electricity supply (second revision).



D = diameter of mould at centre

d = diameter of mould at cable entry portion

L = total length of mould

l = length of round portion at centre

FIG. 1 MOULD FOR STRAIGHT THROUGH JOINTS

TABLE 1 MOULD DIMENSIONS

(Clause 3.1)

MOULD DESIGN- NATION	MINIMUM DIMENSIONS, mm			
	d	D	l	L
(1)	(2)	(3)	(4)	(5)
SH1	53	81	60	550
SH2	55	86	65	580
SH3	58	89	75	595
SH4	60	95	94	625
SH5	63	100	100	660
SH6	66	106	115	680
SH7	68	108	125	740
SH8	76	120	162	810
SH9	86	130	177	825
SH10	90	135	180	830

4. SELECTION

4.1 The mould suitable for a particular application may be selected in accordance with Table 2.

TABLE 2 SELECTION OF MOULDS

(Clauses 0.5 and 4.1)

MOULD DESIG- NATION	CABLE SIZE, mm ²					
	3·3 and 6·6 kV PVC		3·3 and 6·6 kV PILC		11 kV PILC	
	Three Core	Single Core	Three Core	Single Core	Three Core	Single Core
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SH1	16	Up to 185	16	Up to 185	—	Up to 185
SH2	25, 35	—	25, 35	—	16, 25	—
SH3	50	240, 300	50	240, 300	35	240, 300
SH4	70	—	70	—	50	—
SH5	95	400, 500, 630	95	400, 500, 630	70	400, 500, 630
SH6	120	—	120	—	95	—
SH7	150	—	150	—	120	—
SH8	185	800, 1 000	185	800, 1 000	150, 185	800
SH9	240, 300	—	240, 300	—	240	1 000
SH10	400	—	400	—	300	—

NOTE— This table does not provide for joints where crossing of cores is involved.

5. MARKING

5.1 Each half of the mould shall be marked by embossing or indenting the following:

- Manufacturer's name or trade-name, and
- Mould designation (see Table 1).

5.1.1 The mould may also be marked with the Standard Mark.

NOTE— The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made there-under. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6. SAMPLING

6.1 A recommendatory sampling plan and criteria for acceptance are given in Appendix A.

APPENDIX A

(Clause 6.1)

RECOMMENDED SAMPLING PLAN

A-1. LOT

A-1.1 In any consignment, all the plastic moulds of the same type and manufactured by the same factory, during the same period and using the same material, shall constitute a lot.

A-1.2 Samples shall be taken from each lot and tested for conformity.

A-2. SCALE OF SAMPLING

A-2.1 The number of plastic moulds to be selected from each lot shall be in accordance with col 1 and 2 of Table 3. The plastic mould shall be selected at random (see IS : 4905-1968*).

**TABLE 3 SCALE OF SAMPLING AND PERMISSIBLE
NUMBER OF DEFECTIVES**

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES
(1)	(2)	(3)
Up to 100	5	0
101 to 500	8	0
501 to 1 000	13	1
1 001 and above	20	1

NOTE — Whenever the lot size is less than 5, all the plastic moulds taken shall be tested.

*Methods for random sampling.

A-3. NUMBER OF TESTS AND CRITERIA FOR ACCEPTANCE

A-3.1 All the plastic moulds selected shall be checked for dimensions. Plastic moulds failing to meet any of the dimensions given in the specification shall be called a defective. If the number of defectives found is less than or equal to the permissible number of defectives (col 3 of Table 3), the lot shall be accepted; otherwise the lot shall be rejected.

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Panel for Cable Accessories, ETDC 59 : P3

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